UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

DATE: March 24, 2010

SUBJECT: Registration Review: Product Chemistry Data Review for Vegetable and Flower Oils.

Registration Review Case #:	**8021**
PC Codes:	**004901, 011332, 021901, 031605, 031608, 040500, 040502, 040503, 040517, 067200, 102701, 129029, 129030, 597501, 597800**
CAS Numbers:	**57-06-7, 120962-03-0, 8000-29-1, 8001-78-3, 8001-22-7, 8001-79-4, 8022-15-9, 8007-02-1, 8000-48-4, 8008-57-9, 61789-91-1, 97-53-0, 8007-75-8, 127-41-3, 106-24-1, 8007-46-3**
Chemical Class:	**Biochemical**

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Biopesticides & Pollution Prevention Division (7511P)

TO: Menyon Adams, Regulatory Action Leader
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ACTION REQUESTED

A preliminary assessment of available information on product chemistry data associated with the vegetable and flower oils and its biochemical products in support of the development of a Registration Review Work Plan.

Introduction

The EPA has made the determination that there is adequate information available on the vegetable and flower oils and will not require any additional data. The EPA considers the following sixteen active ingredients under the banner "Fruit and Vegetable Oils". Those active ingredients are summarized in the table below:

CAS Number	PCC	Name
57-06-7	004901	Oil of mustard
120962-03-0	011332	Canola oil
8000-29-1	021901	Oil of citronella*
8001-26-1	031603	Linseed oil
8001-22-7	031605	Soybean oil*
8001-79-4	031608	Castor oil*
8022-15-9	040500	Lavandin oil
8007-02-1	040502	Oil of lemongrass
8000-48-4	040503	Oil of eucalyptus
8008-57-9	040517	Oil of orange
61789-91-1	067200	Jojoba oil
97-53-0	102701	Eugenol*
8007-75-8	129029	Bergamot oil
127-41-3	129030	alpha-Ionone
106-24-1	597501	Geraniol*
8007-46-3	597800	Oil of thyme*

Table 1. Summary of Vegetable and Flower Oils. *indicates minimum risk pesticide under 40 CFR 152.25(f).

The vegetable and flower oil active ingredients are mainly intended for use as repellents. As noted above, some of the active ingredients have been deemed minimum risk pesticides when used according to the information found in 40 CFR 152.25(f). These pesticides are exempt from federal registration under section 25(b) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) when the products:

1. Contain only active ingredients that are listed as exempt under 25(b) of FIFRA.
2. Contain only inert ingredients classified by EPA as List 4A "Inert Ingredients of Minimal Concern."
3. All ingredients (active and inert) must be listed on the label.
4. The label does not include any false or misleading statements or claim to protect human or public health. The label also cannot imply federal registration.
5. Public health claims are prohibited, with few exceptions.

Active ingredients registered as biochemicals normally require a complete data set on the technical grade active ingredient (TGAI) per the guideline in 40 CFR 158.2030. Some of the active ingredients that are considered under the umbrella term vegetable and flower oils have not been required to submit a complete data set on the TGAI due to exemption under section 25(b) of FIFRA. In these instances, equivalent data has been submitted if and when an end-use product (EP) has been submitted to the Agency for registration. These end-use products are often a blend

of several active ingredients that may or may not include other vegetable and flower oils and other biopesticides. As such, the product chemistry data collected on these end-use products are not applicable to the registration review of the vegetable and flower oils.

The other active ingredients listed above are currently used in products registered by the Agency. A data table has been assembled alongside this document identifying the biochemical pesticides product chemistry data requirements and how these products have satisfied the aforementioned requirements. Of note is that many of the data requirements have been satisfied with use of analysis pertaining to the end use product and not the active ingredient alone. The Agency has reviewed this data. The Agency is satisfied that sufficient data is available on the vegetable and flower oils and does not anticipate the need for additional data. A summary of data related to the vegetable and flower oils are presented below.

Oil of mustard (PCC 004901) is listed as an active ingredient in four active registrations with a maximum concentration of 4.43%.

Canola oil (PCC 011332) is listed as an active ingredient in six active registrations with a maximum concentration of 89.5%.

Oil of citronella (PCC 021901) is listed as an active ingredient in thirteen active registrations with a maximum concentration of 4.2%.

Soybean oil (PCC 031605) is listed as an active ingredient in three active registrations with a maximum concentration of 98%.

Castor oil (PCC 031608) is listed as an active ingredient in one active registration with a maximum concentration of 100%.

Lavandin oil (PCC 040500) is listed as an active ingredient in two active registrations with a maximum concentration of 17.29%.

Oil of lemongrass (PCC 040502) is listed as an active ingredient in two active registrations with a maximum concentration of 2%.

Oil of eucalyptus (PCC 040503) is listed as an active ingredient in six active registrations with a maximum concentration of 100%.

Oil of orange (PCC 040517) is listed as an active ingredient in two active registrations with a maximum concentration of 0.02%.

Jojoba oil (PCC 067200) is listed as an active ingredient in two active registrations with a maximum concentration of 97.5%.

Eugenol (PCC 102701) is listed as an active ingredient in thirteen active registrations with a maximum concentration of 4.2%.

Bergamot oil (PCC 129029) is listed as an active ingredient in two active registrations with a maximum concentration of 0.11%.

Geraniol (PCC 597501) is listed as an active ingredient in eleven active registrations with a maximum concentration of 17.28%.

Oil of thyme (PCC 597800) is listed as an active ingredient in one active registration with a maximum concentration of 36%.

alpha-Ionone (PCC 129030) is listed as an active ingredient in two active registrations with a maximum concentration of 0.01%.

Physical and Chemical Properties	Guideline Number	Oil of Mustard	Canola Oil
Product identity and composition	830.1100	CBI	CBI
Description of starting materials, production and formulation process	830.1200	CBI	CBI
Discussion of formation of impurities	830.1400	CBI	CBI
Preliminary Analysis	830.1700	CBI	CBI
Color	830.6302	Colorless	pale yellow
Physical state	830.6303	Liquid at ambient temp	liquid
Odor	830.6304	Pungent	odorless
Stability to normal and elevated temperatures, metals and metal ions	830.6313	Stable	Stable
pH	830.7000	N/A	6.82
Boiling point/boiling range	830.7220	152oC	N/A
Density	830.7300	1.02 g/mL @15oC	0.92 g/mL @19.5oC
Particle size, fiber length, and diameter distribution	830.7520	N/A	N/A
	830.7550		
	830.7560		
Partition coefficient (n-Octanol/Water)	830.7570	N/A	EP testing
Water solubility	830.7840	slightly soluble, miscible w/ether, chloroform, and benzene	soluble
Vapor presssure	830.7950	3.5 mmHg	EP testing

Oil of Citronella	Soybean Oil	Castor Oil	Lavandin Oil	Oil of Lemongrass	Oil of Eucalyptus	Oil of Orange
CBI	CBI	CBI	CBI	CBI	CBI	CBI
CBI	CBI	CBI	CBI	CBI	CBI	CBI
CBI	CBI	CBI	CBI	CBI	CBI	CBI
CBI	CBI	CBI	CBI	CBI	CBI	CBI
	Amber		White	pale yellow		
	Liquid		Liquid	liquid		
	Slightly aromatic		Odorless	herbaccous odor		
	Stable		N/A	Stable		
	7.5		8.4@25oC	N/A		
	>250oC		N/A	N/A		
	7.68 lbs/gal @20oC		N/A	0.855 g/mL		
	N/A		N/A	N/A		
	N/A		N/A	N/A		
	Emulsifies upon contact with water		N/A	N/A		
	N/A		N/A	N/A		

Jojoba Oil	Eugenol	Bergamot Oil	Geraniol	Oil of Thyme	alpha-Ionone
CBI	CBI	CBI	CBI	CBI	CBI
CBI	CBI	CBI	CBI	CBI	CBI
CBI	CBI	CBI	CBI	CBI	CBI
CBI	CBI	CBI	CBI	CBI	CBI
	Pale to dark yellow		Colorless		Pale yellow
	Liquid		Liquid		Liquid
	Sweet spicy clove woody		sweet floral fruity rose waxy		Cedar wood
	Stable		Stable		Stable
	6.8@21oC		6.3@20oC		N/A
	264.2oC		239.89oC		238oC
	1.050 g/mL		7.231 lbs/gal		0.931 g/mL
	Not found?		Not found?		N/A
	2.73		3.47		N/A
	Insoluble		insoluble		N/A
	0.00948 mmHg		0.0159 mmHg		<1 mmHg @68oC